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Putting the World in World History

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In studying the history of any great campaign, such as Caesar's Gallic Wars, a very good general knowledge of the geography of the country can be obtained by any boy who will take the trouble to work out the details of the campaign with his Ancient Atlas before him, and the corresponding map in the Modern Atlas at hand for purposes of reference. If the habit of tracing on a map the movements of armies be acquired, historical details will readily fix themselves on the memory. Without the assistance of the eye the memory will very soon throw off the burden of details which have never been really comprehended and studied intelligently.—Reverend George Butler, *Public Schools Atlas of Ancient Geography*, 1877²

Spatial Literacy and History Education

Doreen Massey opens her book *For Space* by detailing the advance of Hernán Cortés and his army on the Aztec capital city of Tenochtitlán in the year 1519 *anno domini*, or Year One Reed on the Aztec calendar. The first encounter between Cortés and the Aztec monarch Moctezuma initiated two years of diplomacy, retreat and return, pestilence and war, and concluded with the conquest of the Aztec empire. This well known episode, which Massey uses to illustrate how historical events can produce entirely new geographies, is also a core narrative in the World History curriculum. As Massey points out, like all historical events, this one comes with an implicit spatial ideology. In the standard version of the tale, the Aztecs are trapped and immobile while the Spanish move across the landscape. Massey concludes the anecdote by introducing a problematic: “What might it mean... to question [the] habit of thinking of space as a surface? If, instead, we conceive of a meeting up of histories, what happens to our implicit imagination of time and space?”³

Massey's question forms the point of departure for this paper. In the spirit of her question, I propose that the introductory world history course can and should be conceptualized as a meeting up of histories in space rather than simply as a narrative about change over time in human societies. In a general sense, this proposition arises from a conviction that spatial literacy should be an essential part of education across the curriculum, and that the habits of mind that spatial thinking instills are important to all college students, including, but not limited to, history majors. If this is the case, then all instructors need to identify and interrogate the place of the spatial in their classes. More particularly, world history—the narrative of how and why the world's peoples have encountered one another and with what consequences—must be conceptualized as an essentially geographical specialization,

though it has not yet been systematically approached in that way. This paper proposes a spatially explicit world history pedagogy that can be implemented by any historian right now, along with proposals for software and content development that can improve the capacity for spatially informed and more technically sophisticated world history to extend beyond a small coterie of enthusiasts in the future.

As the epigraph to this paper reveals, history and geography once had a much closer pedagogical relationship than they do today. It was only in the nineteenth century that social science faculties emerged and that humanities faculties divided into the disciplines familiar today. By the late 1940s, the academic discipline of geography was under attack as the merely descriptive study of where things were.⁴ Immanuel Wallerstein, the pioneer of world-systems analysis, one of the theoretical parent fields of world history, has found it necessary to call for the construction of a new interdisciplinary historical social scientific practice in order to encompass the fields of knowledge required to construct a history of global power relations under capitalism.⁵ By 2004, historian Peter Bol could rightfully claim that “historians specialize in tracing and accounting for change over time. At least in principle, historians also recognize that history unfolds through space, yet it is fair to say that we have found it more cumbersome, and perhaps less important, to trace spatial relations than to trace temporal relations.”⁶

With similarly interdisciplinary intensions (though from a very different perspective), in 2005 a National Research Council (NRC) committee of geographers, cognitive scientists, mathematicians and other scholars issued a report calling for instruction in spatial literacy, supported by GIS education, across the primary and secondary school curriculum. As the committee declared, “spatial thinking is at the heart of many great discoveries in science,...underpins many of the activities of the modern workforce,...and pervades the everyday activities of modern life,” and, while spatial thinking is a different matter than GIS *per se*, with advances in computer hardware and software, the speed, accuracy and flexibility of spatial operations could be enhanced and made more easily collaborative.⁷ According to their vision for a new curriculum, spatially literate students would understand features of space such as distance, projection and dimension; they would understand spatial representation; they would understand spatial reasoning (different ways of thinking about distances, extrapolating and interpolating, decision making); and they would have a critical understanding about where and how to think spatially.⁸

The NRC report includes a classic example of spatial thinking to reveal how literacy in this domain transforms problem solving. In 1854, John Snow collected data about a London cholera outbreak, integrated it using maps, identified spatial patterns, correlated different spatial patterns with one another, reasoned about spatial variations in death rates as a function of spatial variation in water sources, and traced

the outbreak to a single water pump—thus containing the spread of the outbreak and demonstrating, for the first time, the etiology of the disease. In a less celebrated but equally elegant example, the NRC report also describes a 1959 classroom exercise in which history students marked a blank United States map, including only river systems and lakes, with the locations where they expected cities, railroads and highways to arise. They discussed their reasoning, and finally compared their hypotheses with a map that included the actual historical information.⁹ Both of these examples illustrate the visual, integrative, and exploratory approaches that mark the integration of geography into reasoning from other areas. Because spatial literacy—pervasive but unrecognized and undervalued—is not systematically instructed anywhere in the curriculum, the NAS committee recommends that it be worked into standards and assessments in many fields. Taking up this challenge, the history department at Idaho State University has recently rewritten its standards to incorporate spatial literacy into the history curriculum.¹⁰

Teaching History Spatially

Historians in particular should consider it impossible to teach without explicit, sustained and sophisticated reference to space and place. Understanding geography is essential for interpreting the past. The nineteenth century school atlas preface that opens this paper provides a pedestrian but nevertheless persuasive explanation of the significance of geography for history: events occur in and through space, and maps of historical events have both illustrative and mnemonic value. That is to say, spatial variation helps to explain the range of human lifeways, the capacity of peoples, goods and ideas to move from place to place, the terms by which peoples have encountered one another, and how rulers governed populations. So far, so obvious. Few if any historians would disagree with these propositions, even if not many consistently incorporate them into research or teaching.

I propose that historians ought to go further than this. While many recent exemplars demonstrate that spatially explicit history can produce new insights about past phenomena and social change—several collections of essays edited by Anne Knowles in recent years are rightly celebrated for showcasing such scholarship—there has thus far been little attempt to generalize from the revelations that these methods have facilitated.¹¹ More commonly, the supporters of spatially enabled history simply allege that GIS makes it possible to conjoin historical phenomena in easier, more playful, and more visual ways; an objective that, as I will explain below, can be achieved in other ways in a classroom setting.¹²

In teaching history with spatial literacy as a goal, the first objective is to explain ideas about space and place that have been held by people in the past, and to illustrate how past peoples came to imagine, shape, communicate about, and visualize their worlds in

particular ways.¹³ It is no exaggeration to say that all peoples have a spatial imagination; and it is always associated with beliefs about the proper relationship between people, places, and territories. Modern and prehistoric foragers, as well as sedentary peoples, have always mapped their lands.¹⁴ Nation-states require sovereign authority that is bolted onto fixed boundaries encircling stable and politically undifferentiated fields, and they create maps illustrating that concept. That extraordinary development can only be explained historically.¹⁵

Second, historians can teach students that geography—physical as well as human—helps to explain many historical phenomena, particularly at long time scales. Jared Diamond, for instance, has eloquently and accessibly demonstrated how regional geography guides human activity and influences processes of social change and interchange, and the study of historical climate change is an exciting and emerging field.¹⁶

Finally, as Doreen Massey has explained, the relationship between history and geography is more than the sum of “time” plus “space.”¹⁷ The discipline of history is the study of how phenomena change over time, not a chronicle of the events of the past. Geography explores the significance of spatial variation. Its object is not the creation of a gazetteer of places. This small rephrasing is more than semantics. It also suggests the contours of a sustained intellectual engagement between history and geography. As Massey argues (a geographer, her starting point is the construction of space, not history, but one might easily turn this proposition around), space is fixed (it seems eternal at any moment) but it is also contingent (given spatial arrangements are a result of some history), and thus space is always temporal and relational. As she declares, “coincidences of events form the structure of time-space,” and later on, “the challenge of space is addressed by an imagination of time.”¹⁸

From these three insights—that all peoples have a spatial imagination, that geography shapes history, that and space is historical—I conclude that if history students learn to think spatially, they can understand that there are many simultaneous worlds at any time, that multiple histories therefore coexist as well, and that as a result there is no single and linear path of progress. Surely this is the insight that we wish to impart to history students; and geography, with its visual, tangible and ludic quality, is an excellent way to get there.

World History is About Worlds

Spatial thinking supports all kinds of history teaching, but the scope and breadth of world history makes the spatial perspective particularly valuable. Indeed, the world history emphasis on structures of connection between peoples and regions makes it

essential. World history is not the history of everything in the world. Rather, Patrick Manning, leading advocate for world history as an academic field, declares that “to put it simply, world history is the history of connections within the global community.”¹⁹ The field of world history presumes that such connections are ancient and pervasive. Eric Wolf’s well-known survey of the world on the cusp of European expansion determined that “everywhere in [the] world of 1400, populations existed in interconnections...If there were any isolated societies these were but temporary phenomena – a group pushed to the edge of a zone of interaction and left to itself for a brief moment in time.”²⁰ Janet Abu-Lughod championed the thirteenth century as a “remarkable moment” when regions of Africa and Eurasia came into contact with one another as never before.²¹ Immanuel Wallerstein’s world-systems analysis spatializes the history of capitalism by locating its processes in a geography of core, semi-periphery and periphery.²² Andre Gunder Frank and Barry Gills discern a five thousand year old exchange geography in Eurasia, while Christopher Chase-Dunn and Kelly Mann demonstrate that even the small worlds of forager bands are spatially structured in ways that allow goods and people to circulate beyond their own frontiers.²³

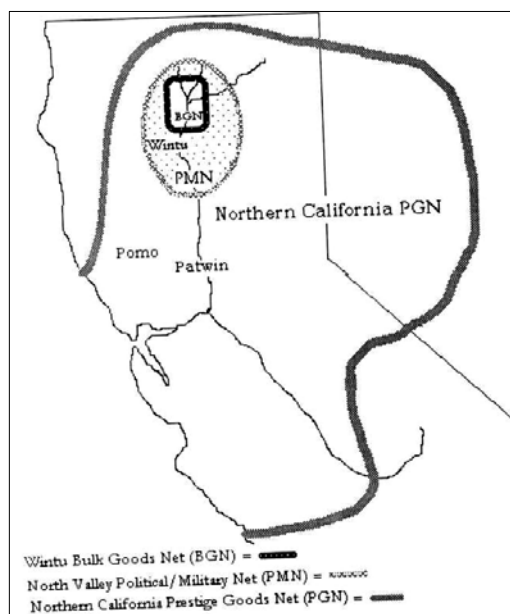


Figure 1: Chase-Dunn and Mann’s model of the forager world-system of the California Wintu, depicting both core territories (a Bulk Goods Net and a Political/Military Net) and the scope of an exchange network (a Prestige Goods Net).²⁴

The study of connections among peoples is inherently geographical. It necessarily concerns the routes that people, goods, pathogens, and ideas follow as they move through space, and the locations where they meet up. World history requires an explicit and theoretically grounded geography. Since the historian’s world is the

ecumene — the territorial scope of a given society's geographical knowledge at a particular time, not the planet earth as such — it follows that the worlds of world history are numerous and coexisting.²⁵ Manning's chapter on the question of "what constitutes the global?" emphasizes the diversity of meanings attributed to the term world. It includes such concepts as the world of music, the civilized world, the planet earth, and the universe.²⁶ As Chase-Dunn and Mann's Wintu world map illustrates, the size of any world is expandable and contractible, and worlds are nested, overlapping and coexisting. And, as Manning argues, specifying the geographical scale of a historical study is always essential, for the patterns and phenomena appropriate to any study depend upon it, and conclusions drawn from one scale do not generalize to another.²⁷ Even the alleged continents have grown, shrunk, split, merged and been transformed in all of their characteristics throughout the centuries that people have attempted to describe large regions of the earth.²⁸ As Doreen Massey has noted, the ideological project of modernity centrally involved the development of "a particular hegemonic understanding of the nature of space itself, and of the relation between space and society." Places had to be viewed as if they had been clearly divided from one another "from the beginning" and were internally coherent.²⁹ The history of spatial thinking, the significance of spatial scale for understanding history, and spatial nature of human connection are the components of spatial literacy that should be imparted in teaching world history.

A brief and selective survey of world history textbooks demonstrates, however, that spatial literacy is not fully supported in world history education. The titles of many world history textbooks imply theories of space: for example, *Societies, Networks and Transitions*, *The Earth and its Peoples*, and *Traditions and Encounters*. Felipe Fernandez-Armesto's book *The World: A History*, published a year ago to great acclaim and currently the textbook for my course, boasts a title implying that spatial history will be the topic of the book.³⁰ However, the "worlds" evoked in these texts sometimes amount to little more tangible than the aspatial geographical imaginary that is evoked by the popular signifier "globalization." That is, they celebrate interconnection without historicizing it or locating its elements within a corporeal geospatial world.³¹

Worlds Together, Worlds Apart: A History of the Modern World from the Mongol Empire to the Present, written by Robert Tignor, demonstrates how spatial literacy can be meaningfully and centrally incorporated into a world history textbook. Like all the best world history textbooks, the challenge that the book sets for itself is "how to treat the many regions of the world and the many centuries in an integrated way," and how to combine learned understanding of regional histories with cross-regional relationships.³² Tignor explores movements that facilitate global connectedness, how some regions and populations stand apart from the rest of the world, how regions are affected by the experience of connection, and how regions experience connection

differently. The book even addresses world-systemic questions in a spatially aware fashion. Tignor writes that “changes in power arrangements within and between regions explain which parts of the world and which regional groups benefited from integration and which resisted it.”³³

The publisher’s boast of an “innovative pedagogical program” associated with Tignor’s book includes the claim for a “Stellar Map Program with Enhanced Captions,” and showcases the “sixty beautiful maps [that] appear in the text, each accompanied by an enhanced map caption designed to engage the reader analytically, while conveying the key role that geography plays on the development of history and the societies of the world.”³⁴ The maps are numerous, thematically and conceptually grounded in the narrative, and visually communicative. They are indeed paired with captions that inspire careful analysis and spatial reasoning. For instance a map entitled The African Slave Trade, 1440–1867 is captioned as follows:

The African slave trade flourished in the seventeenth, eighteenth, and nineteenth centuries, linking many parts of Africa with the Americas. Where were the largest groups of African slaves found in the Americas, why were they taken to these areas, and what parts of Africa did they come from? Given that the longer the crossing the greater the loss of life on the slave ships, which of the Atlantic crossings were likely to be the most deadly, and which the least? How did the trans-Saharan slave trade and the Indian Ocean slave trade differ from the Atlantic slave trade?³⁵

The map is associated with text describing the historical geography of slave commerce, the port cities that served it, and the effects of the trade on African polities and political networks.

Education in spatial literacy for world history requires students to engage extensively and critically with geographical information. Maps and analysis must be used to illuminate the diversity and coexistence of past worlds, the means by which worlds were spatially structured and connected with one another, and the consequences of the encounters among multiple worlds for constructing new spatial arrangements. Even the most spatially engaged textbook must necessarily be integrated into a course that supports these objectives.

Assignments and Approaches

If I may very briefly once again describe my methodology: first of all play, paint on the maps, draw in lines and points, but in a very playful fashion—then problems suddenly emerge. – Walter Christaller, 1972³⁶

Students generally enter the World History survey course equipped with dominant cultural assumptions about geography and history, the attitude that Doreen Massey terms the “billiard-ball view of the world.”³⁷ The term reflects the idea that entities exist in their full identities, come into contact with one other, and rebound with their original character intact. Their preconception is reinforced by all of the paper maps familiar to them from classroom walls and atlases, with their timeless character and discrete nation-state boundaries. Because a spatially informed world history class needs to challenge an entire lifetime of imagined common sense, it is not enough for it to be saturated with maps, nor even for it to incorporate GIS instruction. Fundamentally, the course must enliven students to the ways in which spatial arrangements are meaningful, historical and multitudinous. That ideal is difficult to achieve in practice, even for a spatially literate instructor using a spatially informed textbook. Maps, even paper ones, built around interconnections rather than reified and inert boundaries violate many familiar conventions, and they necessarily implicate time as well as space. Therefore, students must develop a new spatial framework in order to create and interpret them.

Animated world history maps and spatial databases can effectively reveal spatial interaction and territorial mutability. However, few history students have data analysis skills; and many currently available animated maps (while frequently featured on the websites and CD-ROMs associated with history textbooks) are low quality exemplars of a genre that remains poorly standardized and under-theorized. If my objective is to offer a spatially aware introduction to world history for college students, GIS is simply too much to ask. The practical challenges of teaching millennia of global history to lower-division students in a fifteen week lecture class are such that education in spatial literacy and presentation of geographical information must be integrated into the fabric of the course rather than offered through free-standing technology instruction. A GIS lab, for instance, is an undue burden on students who must cover hundreds of years of content each week and learn the historian’s skills of reading and narrative synthesis besides those of spatial analysis. In the previous sections of this paper, I have introduced the proposition that spatial literacy is a fundamental part of world history education. Here I want to make that case that it is feasible to incorporate it into the world history survey course without teaching GIS. As Anne Knowles has pointed out, training in GIS software is not an essential component of education in spatial literacy. Her historical geography students learn to trace features from paper maps onto mylar and overlay them in order to visually observe spatial relationships. Through this exercise, they learn about spatial visualization, spatial patterns and the correlation between spatial phenomena in a playful, exploratory, and tactile fashion consistent with her course goals and without the distraction of learning a technical software package.³⁸

As the authors of the National Research Council spatial literacy report point out,

spatial thinking can be supported and facilitated by tools and approaches that range from low to high technology in nature. They conclude that “the important thing is that they allow for the spatialization of data and use a range of types and amounts of data.” As they note, there are significant design and implementation challenges to be met before GIS *per se* can be a significant tool for teaching spatial literacy. Historians most obviously and frequently note that the software requires better handling of temporal change and uncertainty.³⁹ In the world history classroom, the adoption of GIS is further constrained by the fact that there is essentially no useful data available in an appropriate format. Any GIS-based assignment would make students who are new to world historical content and thinking, GIS software, and geographical information generally responsible for digitizing and geo-referencing new material. That is an unreasonable expectation. While instructors could potentially develop original data for classroom use, the breadth of the world history survey course and the difficulty of creating useable historical geospatial data puts that solution out of reach. Thus, for now, GIS should be considered “an expert-based, industrial-strength technology, too powerful for most classroom needs, and intimidating and difficult to learn.”⁴⁰

Although GIS is not a feasible tool for a world history survey, as a world history instructor seeking to teach spatial literacy according to the objectives laid out above, I have found several ways to proceed.

1. *Saturate the course with maps.* All of my lectures are richly illustrated with maps. From Neolithic stone carvings to city plans from every continent, images of maps produced in the past demonstrate the cultural and historical specificity and diversity of past geographical imaginations. Fernandez-Armesto’s *The World: A History*, the textbook that I have most recently adopted, is richly illustrated with maps as well. In discussions and on exams, students must demonstrate that they understand how to read and explain these images.

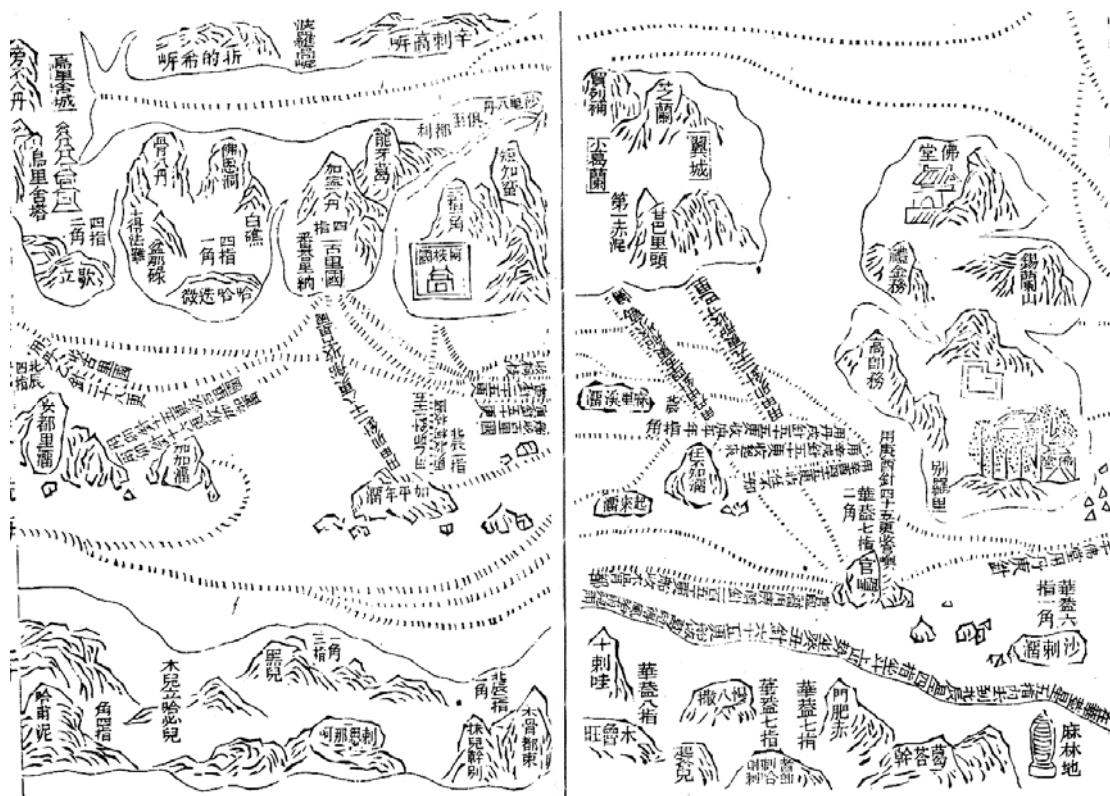


Figure 2: A map from the *Treatise on Military Preparations*, one of 40 sheets depicting the voyages of fifteenth century Chinese mariner Zheng He and his fleet from Nanjing to the island of Hormuz in the Persian Gulf. Students learn to compare this map to Muslim and European maps of the same era and to trace Zheng He's journeys through the Indian Ocean world as they were envisioned by his own contemporaries.⁴¹

I also make extensive use of contemporary thematic maps of historical phenomena. A historical atlas—I like Jeremy Black's *Atlas of World History*—is a required course text.⁴² Each week, students are assigned to read and interpret several maps from this atlas, which I supplement with maps from other books, textbooks and atlases, or find through online searches. Students analyze and discuss maps of historical phenomena during lecture and in discussion section, and they write exam essays based on maps. Through extensive exposure to historical and modern maps, geography becomes a constant frame of reference for historical interpretation.



Figure 3: Another view of the travels of Zheng He and his contemporaries.⁴³ Using this map, students can easily trace the spread of long-distance ocean going in the early modern world, the significance of coastal entrepot cities in the maritime world, and the emergence of colonialism. They can reason about where long-distance shipping originated and the locations of its destinations. One underappreciated historical map convention is the trajectory arrow, prominently featured on this example. This approach for representing change over time on a map has not been made obsolete by digital maps with canned animations that turn readers into passive viewers and make it difficult to compare and retrace routes at leisure.

2. *Use virtual globes.* I introduce students to virtual globes such as ArcGIS Explorer, NASA WorldWind or Google Earth in the first week of the semester.⁴⁴ In light of the objectives and constraints that I have explained thus far, virtual globes offer advantages that are distinct from both paper maps and GIS. Most significantly, these visually compelling, intuitive and tactile visualization tools break ground in their capacity to support the sense of play that geographer Walter Christaller evokes in the quote that opens this section of the paper. As Christaller explains, insights about spatial relations often emerge from mindful serendipity. I prompt my students to fly along virtual coastlines, spot the harbors, consider whether or not there are large cities associated with them today, and why they may or may not be present. I urge

them to locate barriers to movement such as mountains and deserts, tilt and rotate the globe in order to contemplate these features from multiple vantage points and take advantage of three dimensional views, and finally to speculate about how these features would have influenced human activity. Finally, students compare the speculations that they have developed based on the virtual globe with maps in the historical atlas. Following this exercise, their graded assignment is simply to identify three discrete places of personal interest (representing at least two continents) and annotate them with descriptions of the conditions for human settlement that each one represents. Students begin my world history course by exploring and occupying their worlds. While they are encouraged to use the virtual globe for exploration and reference throughout the course, they are not required to do so. With a little practice, students could learn to overlay scanned, georeferenced, semi-transparent maps onto virtual globe imagery for more direct comparison, and to create their own polygons. While a virtual globe is not a substitute for a full-featured GIS, it is a powerful visualization tool.⁴⁵

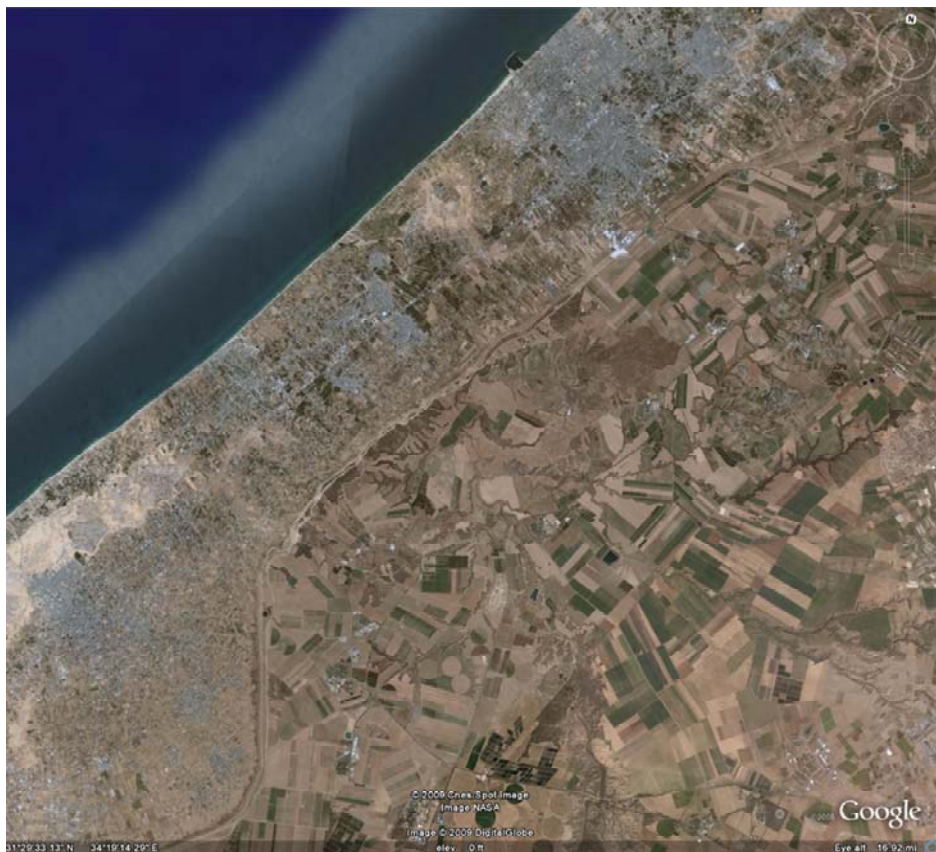


Figure 4: The Gaza–Israel border as viewed in Google Earth. Gaza is the densely populated coastal strip. Using virtual globes, students can immediately recognize how historical contingencies have created distinctive land use patterns on either side of a clearly delineated regime boundary.

3. *Assign students to create maps.* Early in the semester, my students create a series of maps illustrating course themes such as the importance of trade networks and the relationship between natural resources and settlement patterns. In part this assignment replaces the map quiz common to many history courses. The breadth of the world history course makes a comprehensive memorization exercise unviable, but my assignment requires students to identify and map particular features. By mapping physical geography, civilizations, trade routes and trade goods together, students must consider the historical meaning of spatial relationships rather than simply the locations of discrete features. They need to think cartographically to decide how to communicate dense and diverse information on maps, using any digital or paper medium of their choosing. In the most recent version of the assignment, students worked in groups of approximately three students each. Some used pens and paper, some incorporated pushpins, some created collages, and others used Photoshop.

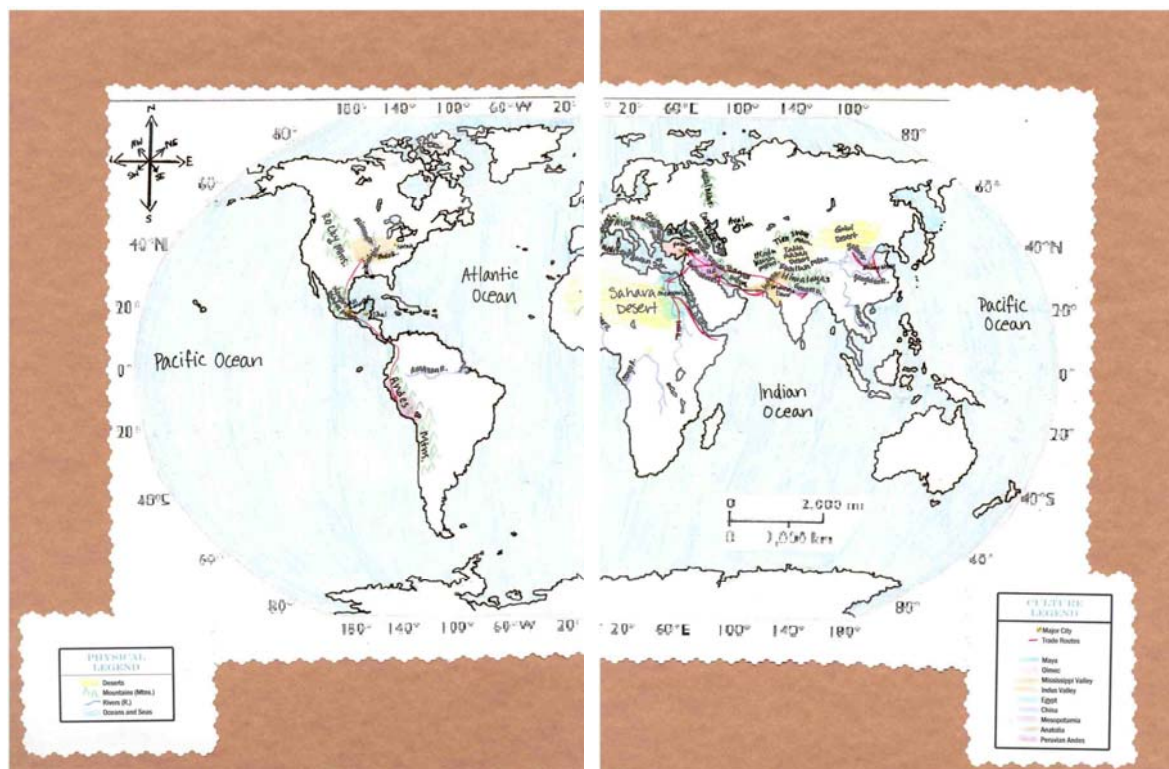


Figure 5: A hand-colored student map depicting physical geography, trade routes, and ancient civilizations.

Referencing maps created in the past, contemporary maps of historical phenomena, virtual globes, and student-authored maps, I offer a spatially integrated world history course. By reading and making maps, students learn to think spatially. They recognize that spatial arrangements are historically contingent, that spatial imaginations are culturally specific, and that human and physical geography profoundly shape the course of history.

Next Steps: Digital Atlases and Spatially Literate Historians

Teaching spatial literacy without GIS has been a success in my world history course. A full-fledged world history GIS would certainly offer additional benefits. Students' spatial reasoning could be more sophisticated, and both students and instructors could create thematic maps, animations for visualizing spatial change, and shapefiles tailored to particular curricular objectives. Students could integrate datasets, analyze spatial arrangements, and explore counterfactuals. Perhaps most promising, they could create or derive small datasets concerned with particular historical phenomena, map them, and analyze them. In contrast to a GIS, the contemporary paper historical atlases upon which my class relies provide relatively few static maps, at fixed scales with limited levels of generalization, and are not extensible or updateable. It is difficult to analyze a large-scale paper map in a meaningful way. As historian Richard White points out, "when historians move to the regional, national and transnational scales, not only does the detail usually fall away, but the region and the nation often become mere containers. Spatial analysis matters less and less as the scale increases."⁴⁶ If the goal of a spatially aware world history course is to integrate change over time, change from place to place, and questions of scale, GIS is a promising part of the solution.⁴⁷

Before GIS can be integrated into the lower – division world history curriculum, however, several barriers have to be surmounted. All of the temporally dynamic entities — regimes, travel routes, battle plans, worlds of religious observance — appearing (at a minimum) in the best world history atlases would have to be digitized, georeferenced, temporally referenced, and modeled in a database. GIS is a kind of database management system, not a mapmaking tool. Originally developed for land use management and the earth sciences, it privileges spatial geometry over temporal change as a dominant reference perspective. Since existing spatio-temporal data models, ontologies and visualization conventions are not well-equipped to handle the spatially and temporally complex, massively interrelated, and uncertainty-fraught entities of cultural history, this represents a scientific challenge as well as an ambitious research agenda for GIS-trained historians.⁴⁸ No existing GIS has succeeded in representing or explaining change over time with anything approaching the sophistication with which they depict spatial distributions, and maps produced with GIS rarely rival those of skilled cartographers.⁴⁹ By comparison with these challenges, developing intuitive and easily customizable GIS software appropriate for a lower division history course — also a necessary objective — seems easy.

In concluding this paper, I call upon historians, textbook publishers, geographic information scientists and funding agencies to take up the challenge of developing a world history GIS. In the meantime, it would be an instructive interdisciplinary

thought experiment to take the “S” (Systems or Science) out of GIS and think in a creative and ecumenical fashion about geographic information for history: how to define it, where to find it, and how to utilize it as both teachers and scholars. Historians cannot train spatially literate students until we as a discipline embrace geography in both teaching and research. I hope that historians will take up the promise of geographical information not only in undergraduate classrooms, but in our graduate education and our research as well.

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Endnotes

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² George Butler, *The Public Schools Atlas of Ancient Geography in 28 Maps: On the Plan of 'The Public Schools Atlas of Modern Geography'*. (London: Longmans, Green, 1877). Thank you to Andrew Wilson for bringing this delightful quote to my attention.

³ Doreen Massey, *For Space* (Los Angeles: Sage Publications, 2005), 4.

⁴ Neil Smith, "'Academic War Over the Field of Geography': The Elimination of Geography at Harvard, 1947–1951," *Annals of the Association of American Geographers* 77.2 (2005), 155–172.

⁵ Immanuel Wallerstein, *World Systems Analysis: An Introduction* (Durham: Duke University Press, 2004), 1–22.

⁶ Peter Bol, "Putting History in Geography," 2004.

⁷ National Research Council, *Learning to Think Spatially: GIS as a Support System in the K–12 Curriculum* (Washington: National Academies Press, 2005), 1, 3.

⁸ *Learning to Think Spatially*, 3–4.

⁹ Both of these examples from *Learning to Think Spatially*, 11–15.

¹⁰ Jack Owens and Laura Woodworth–Ney, "Envisioning a Master's Degree Program in Geographically–Integrated History," *Journal of the Association of History and Computing* 8.2 (2005), and personal communication November 2008 on the new undergraduate standards.

¹¹ The series of books and journal issues that Anne Kelly Knowles has edited provides an exemplary introduction of the field of historical GIS and its evolution over the past decade. These works are: Anne Kelly Knowles, ed. *Placing History: How Maps, Spatial Data, and GIS are Changing Historical Scholarship*. Digital supplement edited by Amy Hillier. (Redlands, CA: ESRI Press, 2008); Anne Kelly Knowles ed. *Emerging Trends in Historical GIS*. Thematic Issue of *Historical Geography*, vol 33 (2005); Anne Kelly Knowles, ed. *Past Time, Past Place: GIS for History*. (Redlands, CA: ESRI Press, 2002) and Anne Kelly Knowles, ed. *Historical GIS: The Spatial Turn in Social Science History*. Thematic issue of *Social Science History*, vol. 24, no. 3 (2000). Alan R. H. Baker's recent volume *History and Geography: Bridging the Divide* (New York: Cambridge University Press, 2003) has a promising title, but it is essentially an extended review of research by historically inclined geographers and spatially inclined historians over the past century. It offers little insight about possible ways forward toward an integrated and theoretically compelling approach to the topic.

¹² Without criticizing colleagues, I can demonstrate this adequately with reference to articles that I myself have co-authored. Lewis Lancaster and Ruth Mostern,

“Resources and New Strategies for Central Asian Studies: The Electronic Cultural Atlas Initiative Approach,” *Central Eurasian Studies Review* 2.3 (2003)
<http://www.cess.muohio.edu/cesr/html/CESR_02_3.html#Lancaster>; and Ian Gregory, Karen Kemp and Ruth Mostern, “Geographical Information and Historical Research: Current Progress and Future Directions,” *History and Computing* 13.1 (2003).

¹³ This is the approach of my forthcoming book, *Dividing the Realm in Order to Govern: Territory and Authority in Song Dynasty China (960–1276 CE)* [under review], which tracks the history of China’s Song dynasty (960–1276 CE) by examining the evolution of its spatial organization.

¹⁴ For an eye-opening introduction to cartography by small-scale societies, see David Harley and G. Malcolm Lewis, *The History of Cartography Volume II.3: Cartography in the Traditional African, American, Arctic and Pacific Societies* (Chicago: University of Chicago Press, 1987).

¹⁵ Peter Sahlins, *Boundaries: The Making of France and Spain in the Pyrenees* (Berkeley: University of California Press, 1989) has performed this work at the level of the nation-state; Martin Lewis and Karin Wigen, in *The Myth of Continents: A Critique of Metageography* (Berkeley: University of California Press, 1997) has done it for world regions. Monica Smith, in “Networks, Territories and the Cartography of Ancient States,” *Annals of the Association of American Geographers* 95(4), 2005, has explained how spatial politics functions in a world with sovereign states that lack clear boundaries.

¹⁶ Jared Diamond, *Guns, Germs and Steel: The Fates of Human Societies* (New York: Norton, 1997). On medieval climate change and its differential regional impact on human societies, see Brian Fagan, *The Great Warming: Climate Change and the Rise and Fall of Civilizations* (New York: Bloomsbury, 2008).

¹⁷ While Donna Peuquet’s *Representations of Space and Time* (New York: Guilford, 2002) focusses on “time” and “space” rather than “history” and “geography” (a distinct and somewhat less processual approach), her discussion of the philosophical and cognitive character of each domain and the way forward in database and application development is also instructive.

¹⁸ Massey, 3, 71.

¹⁹ Patrick Manning, *Navigating World History: Historians Create a Global Past* (New York: Palgrave Macmillan, 2003), 5.

²⁰ Eric Wolf, *Europe and the People Without History* (Berkeley: University of California Press, 1982), 71.

²¹ Janet Abu-Lughod, *Before European Hegemony: The World System A.D. 1250–1350* (New York: Oxford University Press, 1989), 3.

²² World-systems analysis could be made more interesting and explicit with better and more sustained reference to actually existing and less abstract geographies. This paper is not the place for a sustained discussion about showcasing and drawing out the often-implicit and often-abstract geography of world history and world systems theory; an interesting topic that must be left for another time. J.B. Owens' article "Toward a Geographically-Integrated, Connected World History: Employing Geographic Information Systems (GIS)," *History Compass* 5/6 (2007), 2014–2040 is an effort to make these same points. Drawing on the work of Andre Gunder Frank, Karin Wigen and others, he argues for a network-based approach to historical interaction (2018–2019). In keeping with Frank's work in *ReOrient: Global Economy in the Asian Age* (Berkeley: University of California Press, 1998), Owens rejects world-systems methodologies that attempt to structure the hierarchical and spatial character of such networks in a schematic and generalizable fashion. While I differ from Owens in my opinion of the value of world systems theory for world history, I share his support for GIS as a historical methodology that can assist with the study and teaching of world history.

²³ Andre Gunder Frank and Barry Gills, *The World System: Five Hundred Years or Five Thousand?* (New York: Routledge, 1993), Christopher Chase-Dunn and Kelly Mann, *The Wintu and their Neighbors: A Very Small World-System in Northern California* (Tucson: University of Arizona Press, 1998). It is noteworthy that, with the exception of Patrick Manning, all of the individuals whose works I have cited in this paragraph are sociologists and anthropologists. World history as a research field is a notably interdisciplinary endeavor.

²⁴ Chase-Dunn and Mann, pp..

²⁵ Jean-Louis Tissier, "Ecumene," *Hypergeo* <http://www.hypergeo.eu/article.php?id_article=297>, viewed January 12, 2009.

²⁶ Manning, 265.

²⁷ Manning, 266–7.

²⁸ Martin Lewis and Karen Wigen, *The Myth of Continents* (Berkeley: University of California Press, 1997).

²⁹ Massey, 64.

³⁰ Craig A. Lockard, *Societies, Networks, and Transitions: A Global History*. (Boston, MA: Houghton Mifflin, 2008); Richard W. Bulliet, *The Earth and Its Peoples: A Global History*. (Boston: Houghton Mifflin, 1997), Jerry H. Bentley and Herbert F. Ziegler. *Traditions & Encounters: A Global Perspective on the Past*. (Boston: McGraw Hill, 2000), Felipe Fernandez-Armesto, *The World: A History* (Prentice Hall, 2009).

³¹ While I have framed this challenge in spatial terms, the question is broader: namely, how to introduce world-system history into the World History classroom. This issue has merged twice on the H-World listserv in recent years: in November 2005 and in April 2008. Neither thread is that illuminating, but both discussions reach the conclusion that the world systems approach is not generally taken up in world history courses. This is based on a search of the H-World archives. The search results that I received are at: <http://www.h-net.org/logsearch/?phrase=world+system&type=keyword&list=h-world&hitlimit=25&field=EDSJ&nojg=on&smnth=00&year=2005&emonth=11&eyear=2029&order=relevance>. Accessed on November 3, 2008. Therefore, it is not surprising that the implicit geography that the world-system approach implies is also not a component of world history education.

³² Robert Tignor, *Worlds Together, Worlds Apart: A History of the Modern World from the Mongol Empire to the Present* (New York: W. W. Norton, 2008), xxv.

³³ Tignor, xxvi.

³⁴ Tignor, xxviii.

³⁵ Tignor, 131–132.

³⁶ Cited in *Learning to Think Spatially*, p. 93.

³⁷ Massey, 72.

³⁸ Knowles, Anne Kelly. 2000. A Case for Teaching Geographic Visualization without GIS. *Cartographic Perspectives* 36(spring): 24–37.

³⁹ Ian Gregory and Paul Ell, *Historical GIS: Technologies, Methodologies and*

Scholarship (New York: Cambridge University Press, 2007).

⁴⁰ *Learning to Think Spatially*, 8. That is not to say that GIS education has no place in history education. Martha Jones teaches an upper division undergraduate course at the University of Michigan on the history of Black Detroit that has a significant laboratory component. ("Mapping Black Detroit: Constructing Citizenship a Pre-Civil War American City," presented at the American Historical Association Annual Meeting, Atlanta, GA, January 6, 2007). There are numerous successes in the use of GIS in graduate-level history education, for instance by J. B. Jack Owens at Lewis and Clark State College and by Peter K. Bol in the East Asian Languages and Cultures department at Harvard University.

⁴¹ Mao Yuanyi, *Wubei zhi* [A Treatise on Military Preparation], ca. 1621. Online at http://www.loc.gov/today/placesinthenews/archive/2005arch/20050706_zheng.html, viewed January 8, 2009.

⁴² Jeremy Black, editor, *Atlas of World History* (Second Edition), Dorling Kindersley, 2005. Many other world history atlases feature longer textual essays and fewer maps than the one that I prefer. It is of some relevance to this essay to note that the historical atlas is a very ancient but strikingly undertheorized genre.

⁴³ Howard Spodek, *Overhead Transparencies: The World's History* Third Edition (Upper Saddle River, NJ: Pearson Education, 2006), Map 14-1 (PDF download).

⁴⁴ While I am most familiar with the ubiquitous and truly delightful Google Earth, I am officially neutral among the available options. It is useful to recognize that Google Earth is merely one example of a genre of tools; and particularly to acknowledge that NASA supports an open source alternative.

⁴⁵ Much of the writing about Google Earth and other virtual globes is either instructional or entirely celebratory. An excellent assessment of the potential impact of virtual globes on scholarly practice is Michael F. Goodchild, "What does Google Earth mean for the Social Sciences?", in M. Dodge, M. MacDerby and M. Turner (eds.), *Geographic Visualization* (John Wiley & Sons, 2008), 11-23.

⁴⁶ Richard White, "Foreword," in Knowles, ed., *Placing History* x.

⁴⁷ While historical GIS is a rapidly expanding field, many of its greatest successes represent short time frames, small spatial scales, and limited data types. Perhaps the most ambitious, the Vision of Britain <<http://www.visionofbritain.org.uk/index.jsp>> (viewed on January 12, 2009), encompasses three hundred years in the history of a

single island nation. A number of promising initiatives have assessed the needed content and methodology for a world historical GIS. In the early part of this decade, the Electronic Cultural Atlas Initiative and the TimeMap project piloted a metadata clearinghouse and time enabled map browser for historical spatial content. See Ruth Mostern, "The Electronic Cultural Atlas Initiative," *Historical Geography* (2005).

⁴⁸ Ruth Mostern and Ian Johnson, From Named Place to Naming Event: Creating Gazetteers for History, *International Journal of Geographic Information Science* 22.10 (October 2008), 1091–1108.

⁴⁹ Steven Hornsby, "What Can GIS Offer World History?: Position Paper," History Compass Theory and Methods Blog 2008, <http://historycompass.wordpress.com/> accessed November 3, 2008.